REMARKS

In the Final Office Action, the Examiner rejects claims 1, 3, 4, 8, 16, 17, 22-26, and 36-40 under 35 U.S.C. § 103(a) as unpatentable over BARHAM et al. (U.S. Patent No. 6,721,371) in view of YASUDA (U.S. Patent No. 6,466,913); rejects claims 5-7, 13, 27-29, and 33 under 35 U.S.C. § 103(a) as unpatentable over BARHAM et al. in view of YASUDA, and further in view of QUIGLEY et al. (U.S. Patent No. 6,650,624); rejects claims 14, 15, 34, and 35 under 35 U.S.C. § 103(a) as unpatentable over BARHAM et al. in view of YASUDA, further in view of QUIGLEY et al., and still further in view of PEYROVIAN (U.S. Patent No. 5,768,682); and rejects claims 9, 10, 12, and 30-32 under 35 U.S.C. § 103(a) as unpatentable over BARHAM et al. in view of YASUDA, further in view of QUIGLEY et al., and still further in view of Applicant's Fig. 17(A). Applicant respectfully traverses these rejections. Claims 1, 3-10, 12-17, and 22-40 remain pending in the present application.

Rejection under 35 U.S.C. § 103(a) based on BARHAM et al. and YASUDA et al.

Claims 1, 3, 4, 8, 16, 17, 22-26, and 36-40 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over BARHAM et al. in view of YASUDA et al. Applicant respectfully traverses this rejection.

Independent claim 1 is directed to a method for provisioning multiple digital receivers. The method includes providing an analog to digital converter having an analog input and a digital output; providing a plurality of digital receivers, each receiver having a programmable center frequency, where the plurality of digital receivers are to receive digitized samples from the analog to digital converter and where each of the plurality of digital receivers includes a low-pass digital filter; maintaining pre-computed sets of filter

coefficients in non-volatile storage, each set corresponding to one of the plurality of low-pass digital filters, each filter having one of a predetermined set of bandwidths; receiving a request to provision a selected one of the plurality of digital receivers; selecting a first center frequency and a first bandpass bandwidth for provisioning the selected one of the plurality of digital receivers; retrieving the filter coefficients associated with the first bandpass bandwidth; subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency; and loading the transformed filter coefficients into coefficient latches in the selected one of the plurality of digital receivers. BARHAM et al. and YASUDA et al., whether take alone or in any reasonable combination, do not disclose or suggest this combination of features.

For example, BARHAM et al. and YASUDA et al. do not disclose or suggest subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency. The Examiner appears to admit that BARHAM et al. does not disclose this feature and relies on col. 7, lines 1-9; col. 7, line 50-col. 8, line 18; col. 10, lines 28-47; and col. 11, lines 22-41 of YASUDA et al. as allegedly disclosing this feature (final Office Action, p. 4). Applicant respectfully disagrees with the Examiner's interpretation of YASUDA et al.

At col. 7, lines 1-10, YASUDA et al. discloses:

> The ADC 311 inputs an analog right-channel sound signal (R CH INPUT), and converts the input signal into a digital signal. The ADC 311 supplies the digital signal to each of the inputs of the FIR filter 312a and the FIR filter 312b. The coefficient buffer 313a stores filter coefficients of the FIR filter 312a which are read from the coefficient ROM 302 and transmitted by the CPU 301. The coefficient buffer 313b stores filter coefficients of the FIR filter 312b which are read from the coefficient ROM 302 and transmitted by the CPU 301.

This section of YASUDA et al. discloses that filter coefficients are read from a coefficient ROM 302 by a CPU 301 and transmitted to a coefficient buffer 313a. This section of YASUDA et al. in no way discloses or suggests subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency, as recited in claim 1. In fact, this section of YASUDA et al. does not disclose or suggest subjecting retrieved coefficients to any sort of transformation, let alone a bandpass transformation corresponding to the first center frequency. In YASUDA et al., the coefficients that are read from the coefficient ROM 302 are merely transmitted to a coefficient buffer 313a – no transformation of these coefficients occurs.

Moreover, Applicant respectfully submits that reading and transmitting filter coefficients are not equivalent to subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency, as recited in claim 1. Further still, Applicant notes that this section of YASUDA et al. makes no mention of a center frequency at all.

At col. 7, line 50-col. 8, line 19, YASUDA et al. discloses:

> In the above-mentioned system of FIG. 4, the CPU 301 reads filter coefficients of the right-channel FIR filters 312a and 312b from the coefficient ROM 302 in accordance with the localization shift signal, and transmits the filter coefficients to one of the coefficient buffers 313a and 313b alternately. At the same time, the CPU 301 reads filter coefficients of the left-channel FIR filters 322a and 322b from the coefficient ROM 302 in accordance with the localization shift signal, and transmits the filter coefficients to one of the coefficient buffers 323a and 323b alternately. If the FIR filter 312a has already output the localized sound signal based on the previous filter coefficients in the coefficient buffer 313a, the FIR filter 312b outputs the localized sound signal based on the new filter coefficients in the coefficient buffer 313b. The fader 315 serves to make the previous-coefficient-based localization sound signals to fade out within a cross-fade period and to simultaneously make the new-coefficient-based localization sound signals to fade in within the cross-

> fade period. Similarly, if the FIR filter 322a has already output the localized sound signal based on the previous filter coefficients in the coefficient buffer 323a, the FIR filter 322b outputs the localized sound signal based on the new filter coefficients in the coefficient buffer 323b. The fader 325 serves to make the previous-coefficient-based localization sound signals to fade out within the cross-fade period and to simultaneously make the new-coefficient-based localization sound signals to fade in within the cross-fade period.

This section of YASUDA et al. discloses that filter coefficients are read from a coefficient ROM 302 in accordance with a localization shift signal by a CPU 301 and transmitted to coefficient buffers 322a, 322b, 323a and 323b. This section of YASUDA et al. in no way discloses or suggests subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency, as recited in claim 1. In fact, like the previously cited section of YASUDA et al., this section of YASUDA et al. does not disclose or suggest subjecting retrieved coefficients to any sort of transformation, let alone a bandpass transformation corresponding to the first center frequency. In YASUDA et al., the coefficients that are read from the coefficient ROM 302 are merely transmitted to a coefficient buffer 313a – no transformation of these coefficients occurs.

Moreover, Applicant respectfully submits that reading and transmitting filter coefficients are not equivalent to subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency, as recited in claim 1. Further still, Applicant notes that this section of YASUDA et al. makes no mention of a center frequency at all.

At col. 10, lines 28-47, YASUDA et al. discloses:

> In the system control module 1 of FIG. 7, the initial parameter generating unit 34 generates initial parameters to be stored in the initial parameter

> memory 35. The initial parameter memory 35 stores a plurality of sets of initial parameters with respect to a plurality of predetermined direction angles about the front position of the listener. The CPU 31 reads one of the sets of initial parameters from the initial parameter memory 35 in accordance with the localization shift signal, and transmits the initial parameters to the optimum parameter calculating unit 36. The optimum parameter calculating unit 36 calculates an optimum filter parameter based on the initial parameters transmitted by the CPU 31. The filter coefficient determining unit 37 determines filter coefficients of each of the S/L filter 12 and the S/L filter 22 based on the optimum filter parameter supplied by the optimum parameter calculating unit 36. The CPU 31 controls the filter coefficient determining unit 37 such that the determined filter coefficients are supplied from the filter coefficient determining unit 37 to each of the coefficient buffer 13 and the coefficient buffer 23.

This section of YASUDA et al. is directed to calculating a filter parameter based on initial parameters. YASUDA et al. appears to disclose that the initial parameters relate to direction angles. This section of YASUDA et al. does not mention subjecting any retrieved coefficients to any transformation, let alone a bandpass transformation corresponding to the first center frequency, as recited in claim 1. Further still, Applicant notes that this section of YASUDA et al. makes no mention of a center frequency at all.

At col. 11, lines 22-41, YASUDA et al. discloses:

> As previously described, one of the sets of initial parameters (fc, Q, L) (which are relevant to the localization shift signal) is read from the initial parameter memory 35 by the CPU 31, and the CPU 31 transmits the initial parameters to the optimum parameter calculating unit 36. The optimum parameter calculating unit 36 calculates an optimum filter parameter based on the initial parameters transmitted by the CPU 31. The filter coefficient determining unit 37 determines filter coefficients of each of the S/L filter 12 and the S/L filter 22 based on the optimum filter parameter supplied by the optimum parameter calculating unit 36. The CPU 31 controls the filter coefficient determining unit 37 such that the determined filter coefficients are supplied from the filter coefficient determining unit 37 to each of the coefficient buffer 13 and the coefficient buffer 23. Hence, the S/L filters 12 and 13 in the sound localization control system provide the right-channel and left-channel output signals at their outputs which suit the localization shift signal at the input of the CPU 31.

This section of YASUDA et al. discloses that initial parameters are read from a memory, and then an optimum parameter calculating unit calculates an optimum filter based on the initial parameters. This section of YASUDA et al. does not disclose subjecting retrieved filter coefficients to a bandpass transformation, as recited in claim 1. Instead, this section of YASUDA et al. discloses determining a filter coefficient based on initial parameters. As such, this section of YASUDA et al. cannot reasonably be construed to disclose or suggest subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency, as recited in claim 1.

Applicant notes that, in essence, the Examiner alleges that a CPU 301 selecting a filter coefficient and setting the function of a FIR filter using that filter coefficient are the equivalent of subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency, as recited in claim 1. Applicant respectfully submits that the Examiner's allegation completely omits (i.e., does not address) the claimed feature, subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency, and renders moot the Examiner's allegation regarding another claimed feature, loading the transformed filter coefficients into coefficient latches in the selected one of the plurality of digital receivers.

Applicant respectfully submits that merely "selecting" a filter coefficient and "setting" a function of a FIR filter, as alleged by the Examiner, do not disclose or suggest subjecting the retrieved coefficients to a bandpass transformation. Subjecting a retrieved coefficient to a bandpass transformation, as recited in claim 1 involves more than merely "selecting" the coefficient. Claim 1 recites that a retrieved coefficient is subjected to a

bandpass transformation – a feature that is neither addressed by the Examiner, nor disclosed or suggested by YASUDA et al.

If the Examiner disagrees, Applicant respectfully requests that the Examiner specifically explain how one of ordinary skill in the art would construe the "selecting" and/or "setting" functions alleged by the Examiner as disclosing or suggesting subjecting the retrieved coefficients to a bandpass transformation. Applicant further requests that the Examiner explain how one of ordinary skill in the art would read YASUDA et al., particularly the cited sections of YASUDA et al., as disclosing or suggesting the above feature.

Furthermore, Applicant respectfully submits that the Examiner's allegation with regard to the above feature renders moot the Examiner's allegation that YASUDA et al. discloses loading the transformed filter coefficients into coefficient latches in the selected one of the plurality of digital receivers. The Examiner's allegation with regard to both of these features includes transmitting coefficients to coefficient buffers. *See* final Office Action, p. 4. Specifically, the Examiner cites col. 7, lines 1-9, 50-67 of YASUDA et al. as disclosing both of these features.

As discussed above, this section of YASUDA et al. discloses that filter coefficients are read from a coefficient ROM 302 in accordance with a localization shift signal by a CPU 301 and transmitted to coefficient buffers 322a, 322b, 323a and 323b. Therefore, Applicant respectfully submits that the Examiner's allegation with regard to one feature, subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency, renders moot the Examiner's allegation with regard to the other feature, loading the transformed filter coefficients into coefficient

latches in the selected one of the plurality of digital receivers, as recited in claim 1. As such, Applicant respectfully submits that the Examiner has not established a *prima facie* case of obviousness with respect to claim 1.

Since BARHAM et al. and YASUDA et al. do not disclose or suggest subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency, BARHAM et al. and YASUDA et al., whether taken alone or in any reasonable combination, cannot disclose or suggest loading the transformed filter coefficients into coefficient latches in the selected one of the plurality of digital receivers, as also recited in claim 1.

For at least these reasons, Applicant submits that claim 1 is patentable over BARHAM et al. and YASUDA et al., whether taken alone or in any reasonable combination. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claim 1 under 35 U.S.C. § 103(a) based on BARHAM et al. and YASUDA et al.

Claims 3, 4, 8, 16, 17, 22, and 23 depend from claim 1. Therefore, Applicant submits that these claims are patentable over BARHAM et al. and YASUDA et al., whether taken alone or in any reasonable combination, for at least the reasons set forth above with respect to claim 1. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 3, 4, 8, 16, 17, 22, and 23 under 35 U.S.C. § 103(a) based on BARHAM et al. and YASUDA et al.

Independent claim 24 recites features similar to (yet possibly of different scope than) features described above with respect to claim 1. Therefore, Applicant submits that claim 24 is patentable over BARHAM et al. and YASUDA et al., whether taken alone or

in any reasonable combination, for at least reasons similar to reasons set forth above with respect to claim 1. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claim 24 under 35 U.S.C. § 103(a) based on BARHAM et al. and YASUDA et al.

Claims 25, 26, and 36-40 depend from claim 24. Therefore, Applicant submits that these claims are patentable over BARHAM et al. and YASUDA et al., whether taken alone or in any reasonable combination, for at least the reasons set forth above with respect to claim 24. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 25, 26, and 36-40 under 35 U.S.C. § 103(a) based on BARHAM et al. and YASUDA et al.

Rejection under 35 U.S.C. § 103(a) based on BARHAM et al., YASUDA et al., and QUIGLEY et al.

Claims 5-7, 13, 27-29, and 33 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over BARHAM et al. in view of YASUDA et al., and further in view of QUIGLEY et al. Applicant respectfully traverses this rejection.

Claims 5-7 and 13 depend from claim 1. Without acquiescing in the rejection of claims 5-7 and 13, Applicant respectfully submits that the disclosure of QUIGLEY et al. does not remedy the deficiencies in the disclosures of BARHAM et al. and YASUDA et al. set forth above with respect to claim 1. Therefore, Applicant submits that claims 5-7 and 13 are patentable over BARHAM et al., YASUDA et al., and QUIGLEY et al., whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 1. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 5-7 and 13 under 35 U.S.C.

§ 103(a) based on BARHAM et al., YASUDA et al., and QUIGLEY et al. Moreover, these claims are patentable for reasons of their own.

For example, claim 7 recites that the ratio of the number of upstream channels demodulated by a cable modem termination system (CMTS) channel bank to a number of upstream input connectors of the CMTS channel bank is M, where M is 16. The Examiner concedes that BARHAM et al. and YASUDA et al. do not disclose the above feature, and appears to generally allege that the above features are a design choice (final Office Action, pp. 8-9). However, the Examiner has not provided a citation to any reference to support the Examiner's allegation. In this respect, Applicant respectfully submits that the Examiner's allegation is improper.

Nevertheless, Applicant respectfully submits that none of the cited references disclose that the ratio of the number of upstream channels demodulated by a CMTS channel bank to a number of upstream input connectors of the CMTS channel bank is 16, as recited in claim 7. Moreover, none of the cited references discloses that such a ratio could be possible.

Furthermore, Applicant respectfully submits that this claimed feature is not merely a design choice, as alleged by the Examiner. Instead, the claimed feature is a technical advantage provided by, and described in, Applicant's Specification (*see, e.g.*, p. 10, line 21-p. 11, line 2; p. 14, line 16-p. 15, line 10).

For at least these additional reasons, Applicant submits that claim 7 is patentable over BARHAM et al., YASUDA et al., and QUIGELY et al., whether taken alone or in any reasonable combination. Accordingly, Applicant respectfully requests that the

Examiner reconsider and withdraw the rejection of claim 7 under 35 U.S.C. § 103(a) based on BARHAM et al., YASUDA et al., and QUIGLEY et al.

Claims 27-29 and 33 depend from claim 24. Without acquiescing in the rejection of claims 27-29 and 33, Applicant respectfully submits that the disclosure of QUIGLEY et al. does not remedy the deficiencies in the disclosures of BARHAM et al. and YASUDA et al. set forth above with respect to claim 24. Therefore, Applicant submits that claims 27-29 and 33 are patentable over BARHAM et al., YASUDA et al., and QUIGLEY et al., whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 24. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 27-29 and 33 under 35 U.S.C. § 103(a) based on BARHAM et al., YASUDA et al., and QUIGLEY et al.

Rejection under 35 U.S.C. § 103(a) based on BARHAM et al., YASUDA et al., QUIGLEY et al., and PEYROVIAN

Claims 14, 15, 34, and 35 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over BARHAM et al. in view of YASUDA et al., in further view of QUIGLEY, et al., and further in view of PEYROVIAN. Applicant respectfully traverses this rejection.

Claims 14 and 15 depend from claim 5. Without acquiescing in the rejection of claims 14 and 15, Applicant respectfully submits that the disclosure of PEYROVIAN does not remedy the deficiencies in the disclosures of BARHAM et al., YASUDA et al., and QUIGLEY et al. set forth above with respect to claim 5. Therefore, Applicant submits that claims 14 and 15 are patentable over BARHAM et al., YASUDA et al.,

QUIGLEY et al., and PEYROVIAN, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 5. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 14 and 15 under 35 U.S.C. § 103(a) based on BARHAM et al., YASUDA et al., QUIGLEY et al., and PEYROVIAN.

Claims 34 and 35 depend from claim 27. Without acquiescing in the rejection of claims 34 and 35, Applicant respectfully submits that the disclosure of PEYROVIAN does not remedy the deficiencies in the disclosures of BARHAM et al., YASUDA et al., and QUIGLEY et al. set forth above with respect to claim 27. Therefore, Applicant submits that claims 34 and 35 are patentable over BARHAM et al., YASUDA et al., QUIGLEY et al., and PEYROVIAN, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 27. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 34 and 35 under 35 U.S.C. § 103(a) based on BARHAM et al., YASUDA et al., QUIGLEY et al., and PEYROVIAN.

Rejection under 35 U.S.C. § 103(a) based on BARHAM et al., YASUDA et al., QUIGLEY et al., and Applicant's Allegedly Admitted Prior Art

Claims 9, 10, 12, and 30-32 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over BARHAM et al. in view of YASUDA et al., further in view of QUIGLEY et al., and further in view of Applicant's allegedly admitted prior art in FIG. 17(A). Applicant respectfully traverses this rejection.

Claims 9, 10, and 12 depend from claim 5. Without acquiescing in the rejection of claims 9, 10, and 12, Applicant respectfully submits that Applicant's Fig. 17(A) does

not remedy the deficiencies in the disclosures of BARHAM et al., YASUDA et al., and QUIGLEY et al. set forth above with respect to claim 5. Therefore, Applicant submits that claims 9, 10, and 12 are patentable over BARHAM et al., YASUDA et al., QUIGLEY et al., and Applicant's Fig. 17(A), whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 5. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 9, 10, and 12 under 35 U.S.C. § 103(a) based on BARHAM et al., YASUDA et al., QUIGLEY et al., and Applicant's Fig. 17(A).

Claims 30-32 depend from claim 27. Without acquiescing in the rejection of claims 30-32, Applicant respectfully submits that Applicant's Fig. 17(A) does not remedy the deficiencies in the disclosures of BARHAM et al., YASUDA et al., and QUIGLEY et al. set forth above with respect to claim 27. Therefore, Applicant submits that claims 30-32 are patentable over BARHAM et al., YASUDA et al., QUIGLEY et al., and Applicant's Fig. 17(A) whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 27. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 30-32 under 35 U.S.C. § 103(a) based on BARHAM et al., YASUDA et al., QUIGLEY et al., and Applicant's Fig. 17(A).

Conclusion

In view of the foregoing amendments and remarks, Applicant respectfully requests the withdrawal of the outstanding rejections and the timely allowance of this application.

As Applicant's remarks with respect to the Examiner's rejections are sufficient to overcome these rejections, Applicant's silence as to assertions by the Examiner in the Office Action or certain requirements that may be applicable to such assertions (*e.g.*, whether a reference constitutes prior art, reasons to modify a reference and/or reasons to combine references, etc.) is not a concession by Applicant that such assertions are accurate or such requirements have been met, and Applicant reserves the right to analyze and dispute such assertions/requirements in the future.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

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